

LISTING OF CLAIMS

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

1. (Original) A rewritable data storage using a carbonaceous material comprising:  
a writing plate formed of a substrate, and a conductive layer deposited on the substrate; and  
a tip for forming or eliminating carbonaceous material in the form of spots on the writing plate, the spots representing information recorded on the conductive layer.
2. (Original) The rewritable data storage using a carbonaceous material of claim 1, wherein the substrate is formed of SiO<sub>2</sub>/Si.
3. (Original) The rewritable data storage using a carbonaceous material of claim 1, wherein the conductive layer is formed of Au.
4. (Original) The rewritable data storage using a carbonaceous material of claim 1, wherein the tip is formed of Ti coated on a tip-shaped Si core.

5. (Original) A rewritable data storage using a carbonaceous material comprising:  
a writing plate comprised of a substrate having striped conductive layer patterns formed on the substrate; and  
a tip disposed in an array having a regular interval corresponding to the striped conductive layer patterns along a cantilever extending across the striped conductive layer patterns in order to form or eliminate carbonaceous material in the form of spots, the spots representing information recorded on the striped conductive layer patterns.
6. (Original) The rewritable data storage using a carbonaceous material of claim 5, wherein the substrate is formed of SiO<sub>2</sub>/Si.
7. (Original) The rewritable data storage using a carbonaceous material of claim 5, wherein the conductive layer is formed of Au.
8. (Original) The rewritable data storage using a carbonaceous material of claim 5, wherein the tip is formed of Ti coated on a tip-shaped Si core.
9. (Original) A method of writing/reading a rewritable data storage using a carbonaceous material, the rewritable data storage having a writing plate formed of a substrate with a conductive layer formed on the substrate and a tip for forming or eliminating a carbonaceous material in the form of spots representing information recorded on the conductive layer, the method comprising:

- (a) writing information by applying a predetermined bias voltage to the space between the tip and the conductive layer and forming a carbonaceous material on the conductive layer;
- (b) erasing the information by applying a voltage of reverse polarity to the bias voltage applied in step (a) to the space between the tip and the conductive layer, and eliminating the carbonaceous material already formed; and
- (c) reading the information by comparing topography between the conductive layer and the carbonaceous material.

10. (Original) The method of writing/reading the rewritable data storage using a carbonaceous material as claimed in claim 9, wherein,

the size of spots of the carbonaceous material formed in step (a) is determined by controlling (1) the magnitude of the bias voltage applied across the space between the conductive layer and the tip and/or (2) the time duration for which the bias voltage is applied.

11. (Original) The method of writing/reading the rewritable data storage using a carbonaceous material as claimed in claim 9, wherein the size of spots of the carbonaceous material eliminated in step (b) is decided by controlling the magnitude of the bias voltage applied across the space between the conductive layer and the tip or the time duration for which the bias voltage is applied.

12. (Original) The writing/reading method of the rewritable data storage using a carbonaceous material as claimed in claim 9, wherein step (c) is performed using one of a capacitance difference, a resistance difference, a frictional coefficient difference, and a height difference between the conductive layer and the carbonaceous material.

13. (Original) A method of writing/reading a rewritable data storage using a carbonaceous material, the rewritable data storage including a writing plate comprising a substrate on which striped conductive layer patterns are formed by depositing a conductor on the substrate; and a tip disposed in an array having a regular interval to correspond to the striped conductive layer patterns in a cantilever extending across the striped conductive layer patterns for forming or eliminating a carbonaceous material in the form of spots representing information recorded on the conductive layer, including:

(a) writing information by positioning the cantilever, applying a predetermined bias voltage to the space between the cantilever tip and the selected conductive layer pattern and forming a carbonaceous material in the selected region of the selected conductive layer pattern;

(b) erasing the information by positioning the cantilever, applying a voltage of reverse polarity to the bias voltage applied in step (a) to the space between the cantilever tip and the selected conductive layer pattern, and eliminating the carbonaceous material already formed; and

(c) reading the information by distinguishing topographical differences between the conductive layer patterns and the carbonaceous material.

14. (Original) The method of writing/reading of a rewritable data storage using a carbonaceous material as claimed in claim 13, wherein the size of spots of the carbonaceous material formed in step (a) is determined by (1) controlling the magnitude of the bias voltage applied across the space between the conductive layer patterns and the cantilever tip, and/or (2) the time duration for which the bias voltage is applied.

15. (Original) The method of writing/reading a rewritable data storage using a carbonaceous material as claimed in claim 13, wherein the size of spots of the carbonaceous material eliminated in step 13 is determined by controlling (1) the magnitude of the bias voltage applied across the space between the conductive layer patterns and the cantilever tip, and/or (2) the time duration for which the bias voltage is applied.

16. (Original) The method of writing/reading the rewritable data storage using a carbonaceous material as claimed in claim 13, wherein step (c) is performed using one of a capacitance difference, a resistance difference, a frictional coefficient difference, and a height difference between the conductive layer patterns and the carbonaceous material.